Air Dominance

By Air Force Lt. Gen. William M. Fraser III
Vice Commander, Air Combat Command

Winston Churchill once said, *"There is nothing wrong with change, if it is in the right direction. To improve is to change, so to be perfect is to change often."*

Transformation is a reality; however, transformation isn't just change for change's sake, it's change in the right direction. Reality usually prompts ideas and innovation. An effective partnership between operators and industry carries ideas into true transformation.

Today's reality is that there are unique challenges facing our warfighters — some obvious — some not so obvious. If we look at where our Airmen fight, and their contributions, perhaps we can uncover some challenges that need to be addressed.

Airmen are providing air dominance over Afghanistan and Iraq, allowing us to operate in any capacity as an effective joint and coalition force with zero risk of enemy aggression from the skies. This air dominance is enabled by network-centric operations. If it flies, hovers, drops or orbits, it is part of a larger joint network that needs to be developed by us in partnership with industry — if we're going to continue air dominance into the future.

We fly combat air patrols in a different way than we did 20 years ago. Legacy bombers have become multi-role strike platforms with deadly precision. They carry versatile weapon loads in orbits over critical ground engagements and allow a level of precision never before achieved.

Who would have known that a year ago a B-1 crew would be flying a close air support (CAS) mission? This is a great example of how airpower has changed. The crew received a tasking from the CAOC (Combined Air Operations Center) to "respond to troops in contact." There was a humvee taking fire from a ridgeline in northeast Afghanistan, and there was no qualified joint terminal attack controller (JTAC) present to clear the B-1 crew to release

weapons — he was 15 minutes away. The Soldiers under fire gave their coordinates, bearing and range for the enemy fire. The B-1 crew found the target with synthetic aperture radar, received clearance from the JTAC to engage, and the crew released two Joint Direct Attack Munitions (JDAM). The first JDAM destroyed the threat.

You can see how airpower has transformed. The B-1 has its origin in the Cold War, but we've transformed its employment to meet the challenges of today's combat. This is a common story across the Air Force today.

Air dominance allows more deliberate, persistent and penetrating intelligence, surveillance and reconnaissance (ISR). Joint networks enhance our capability to perform ISR. We place ISR assets where and when the joint force needs them. Airmen provide persistent, dynamic and nontraditional ISR that benefits the entire joint team.

ISR is everyone's job. This means even fighters, strike aircraft and ground units are involved in building the battlespace picture using on-board sensors connected to command and control nodes through networks.

Today's ISR is unbelievably effective and timely. In November 2004, we were fighting the battle of Fallujah II. We flew just over a 1-to-2 ISR sortie to strike sortie ratio. This means we had one ISR platform up for every two fighters. Only a year earlier, that ratio was 1-to-12. During that battle, we had aircraft orbits stacked in layers above the city.

We achieved constant, dynamic battlespace awareness which allowed a one-two punch. Air strikes hit one house holding insurgents, and then hit a second, smaller house where survivors had fled. You can see this was a level of persistent, real-time ISR that allowed instant responsiveness to ground operations.

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In addition to providing air dominance, Airmen contribute expeditionary air power. Most people don't know Airmen are on the battlefield alongside Soldiers and Marines. Expeditionary Airmen are Airmen who deploy forward. Examples include engineers, communicators, surgeons and contracting troops. They are equipped with basic force-protection competencies to protect themselves and the base.

Expeditionary Combat-Airmen encompass those who, because of their missions and tasks, actively conduct operations "outside the wire" and beyond the protection of the expeditionary air base perimeter. Good examples are contingency response groups and security forces and combat convoy operators. Expeditionary Combat Airmen also perform convoy duty.

We have trained more than 2,500 Air Force transportation troops who are serving alongside Army Soldiers driving convoys. They are trained at Camp Bullis, Texas, for combat convoy duty transporting aircraft fuel, medical supplies and munitions. Airmen have been escorting convoys in Iraq since day one of Operation Iraqi Freedom.

Battlefield Airmen are the tactical air control parties (TACPs), pararescue, battlefield weather, combat control teams, special tactics officers and combat rescue officers. These Airmen directly assist, control and execute operational air and space power. They operate independent of an established air base or its defenses. They truly embody jointness and interoperability.

The perfect example of our battlefield Airmen is the TACP assigned to Army units. The Airmen who make up these groups

provide agile combat capability to prosecute air operations in a mutually-supportive environment. TACPs are more robust, mobile and survivable — they're using Stryker armored vehicles from the Army retrofitted with TACP radios and equipment. The TACP skill set is truly a joint endeavor. The Air Force is training Army officers to be JTACs at Nellis Air Force Base (AFB), Nev. There are currently six Army officers in the course.

Airmen are providing air dominance in a joint and network-centric environment. Airmen fly multi-role platforms with extremely versatile capabilities providing persistent, near real-time, nontraditional ISR that evokes rapid combat responsiveness. Airmen are fighting on the ground and in the air.

Given the current budget challenges, we're developing new and better ways to practice and train as a joint force. Distributed Mission Operations is the perfect tool for training. DMT/DMO (distributed mission training/operations) lets us build a virtual battlespace by linking simulators and live assets into a shared interactive network.

DMO allows us to integrate as a joint force without the risk and expense of flying actual sorties. We can train jointly and in combined operations. DMO extends aircraft life and seasons our pilots more rapidly. DMO also integrates ISR assets and shooters in real-time rehearsals; it enables us to create a realistic threat environment in exercises such as Joint Red Flag.

We've just completed Joint Red Flag 2005. This exercise exploited DMO to a grand scale with great success. Joint Red Flag combined three exercises into one to train like we fight: Joint Red Flag, Virtual Flag and Roving Sands. It was one of the largest distributive exercises in U.S. history.

Joint Red Flag provided training for more than 9,000 people using more than 40 different sites across the CONUS connected through DMO. It combined live, virtual and constructive training. It's basically like making movies — blending live warfighters and a virtual background of settings and scenarios. Networks and jointness were the key. This was the first Joint Red Flag integrating the Air Force, Army,

Navy and Marines. It was the perfect opportunity to practice combat interoperability and interdependence.

We also pursue transformational capabilities in partnership with industry through our battlelabs. The labs are joint and transformational by nature. ACC owns three of the seven battlelabs: the Information Warfare Battlelab at Lackland AFB, Texas; Air Warfare Battlelab at Mountain Home AFB, Idaho; and the Unmanned Aerial Vehicle (UAV) Battlelab at Indian Springs, Nev., now renamed Creech AFB. They rapidly identify and prove the worth of ideas which enable and enhance joint warfighting. I'll list two of many current air warfare battlelab initiatives.

First, is the Alert Data Embedded Passive Tag (ADEPT). This is a joint endeavor with the Army. Using radars, it allows airborne platforms to identify friendly ground forces (wearing tags); it will help us to eliminate fratricide.

Second, is the Stabilized Portable Optical Target Tracking Receiver (SPOTTR). SPOTTR binoculars allow JTACs to identify precisely what ground-based and airborne lasers are targeting to verify that the designated target is the proper one. The result will be the ability to hit targets faster.

Some of our transformational capabilities are organizational. Many of you are familiar with the Air and Space Expeditionary Force (AEF) concept. Our warfighters use newly developed ideas, such as those from the battlelabs, practice new capabilities at exercises, such as Joint Red Flag, and then deploy revived and transformed every time the next AEF drum beat sounds.

Those are just some of the ways that we as warfighters have transformed our training thanks to a strong operator-industry partnership. In addition to its first look, first shot, and first kill capability, we are working to give the F/A-22 the capability to find, fix, track, target, engage and assess a moving target — putting a cursor on a target sooner.

The F/A-22 combines capabilities onto a single platform. Without a strong partnership between industry and the warfighter, it would have been impossible to transform a space-age stealthy fighter

into the ultimate multi-role, peerless air dominance machine.

Industry teamed with the warfighter to give the F/A-22 supersonic SIGINT or signals intelligence. No other fighter will be able to process and collect signals like the Raptor. We developed a fighter-bomber with multiple sources of passive surveillance, a nontraditional ISR developed partly due to the powerful sensor suite on the Raptor. Because of its capability to gain fast, deep-penetrating ISR, it's the perfect complement to traditional collection platforms like the U-2, RC-135, EP-3 and AWACS (airborne warning and control system) aircraft.

Industry is improving the Raptor's capability with development of the small diameter bomb (SDB). With its 250-pound warhead and wing kit, it can fit in the internal weapons bay of the F/A-22 (and the Joint Strike Fighter) and be released 50 miles from its target. The SDB was a technological innovation born from real necessity.

Another great example of technological innovation from industry is the WDL or weapons data link. When developed fully, it will give us the ability to in-flight retarget some weapons. This means we can update target location data to our weapons as they fall and increase the probability of hitting a moving target.

Just as impressive, is that the WDL combines three radio capabilities into one: Link-16, SATCOM and UHF, and dramatically shrinks the component to fit into an Mk-series weapon. We will be able to hit a moving target, or even a target that is stationary at weapons release but attempts to escape as the weapon is in-flight.

The ROVER III or Remote Operations Video Enhanced Receiver receives data from transmitters on Predator and fighter and bomber targeting pods and displays the data to a laptop computer or other viewing device. In the future, Army patrols and Special Operations Forces will depend on ROVER-type technology to be their eyes. This technology is indeed transformational when you consider how Soldiers previously gained imagery — by e-mail at best or by runners carrying pictures in the battlefield.

The new ROVER III version allows reception from Army and Marine Corps small, tactical UAVs. In June, ROVER was used by an Air Force JTAC assigned to a Marine unit near Al Qaim, Iraq. The team was taking fire from an enemy mortar position. The JTAC and the Marines located the mortar position using ROVER and cleared the Predator UAV crew to launch a Hellfire missile to destroy the mortar site and eliminate hostile fire.

UAVs are the perfect example of how technological change supported by industry fundamentally transformed the way we do business. We used to fly many sorties and put our Airmen at extreme risk to attain imagery, signals or other intelligence. Now UAVs do a great deal of that collection and much more.

The MQ-1 Predator and MQ-9 Predator B provide us with remote and long-loiter intelligence and surveillance capabilities and allow us to strike with weapons like the Hellfire antitank missile. The RQ-4 Global Hawk is the ultimate surveillance machine. It provides a versatile sensor load (electro-optical, infrared and radar) and loiters for extremely long sorties — 24 hours-plus. The Global Hawk exploits global networks and data links.

The Joint Unmanned Combat Air System or J-UCAS is a transformational program in its infancy. J-UCAS will develop combat UAVs for suppression of enemy air defenses, electronic attack, precision strike and more.

The steady interaction among industry, defense labs and operators is the catalyst to healthy transformation — to not have it is a barrier to healthy, directional change. That directional change can't happen without continuous operator involvement with industry and well-defined transition plans to take technology from ideas all the way to deployment.

I challenge you to turn more ideas into reality for the warfighter. Let's develop dynamic, networked kinetic weapons. We still need a reliable ability to hit any moving target on the water or on land — in all weather conditions. New technology like the WDL tells us we're well on our way.

We need to develop nonkinetic weapons

Balad Air Base, Iraq – Airmen 1st Class Sarah Oliver, (left), Phillip Coswell, (back left) and Joseph Oliver, process 20 mm rounds for an F-16 Fighting Falcon. They are munitions system journeymen assigned to the 332nd Expeditionary Maintenance Squadron. All three are deployed from Aviano Air Base, Italy. U.S. Air Force photo by Senior Airman Tim Beckham.

such as directed energy. We've learned nation building is costly; if we can deactivate a target without destroying it, we can rebuild faster and cheaper.

I challenge you to evolve our information operations (IO) capabilities. IO is gaining momentum. We have the Information Warfare Battlelab, a new IO range at Nellis AFB, to be used in joint exercises and a structured process for taking IO innovation to operational combat power. Information dominance is essential for combat success. This means optimizing the concepts we now use in information warfare and developing more great ideas so we stay ahead.

Compatible and interoperable networks offer one of the most important opportunities to transform. Jointness means we must have a warfighting network that is truly plug-and-play for everyone. New technologies from industry must create, update, maintain and support these networks for use by everybody and everything: fighters, bombers, tankers, reconnaissance, UAVs, space assets, CAOCs and ground forces.

It should be effortless. The last thing the warfighter needs is another black box that does something really neat, but takes a million-dollar fix to share data on a network. When a Navy F-18 shows up over Iraq, that airplane should automatically check-in, update its data, sensors and weapons from the joint network with no effort from the pilot. And when it leaves, the network should know it automatically.

The House of Representatives just passed

a bill to address the increasing costs of weapon systems. That bill introduces provisions that restrict the DoD from buying immature weapon systems or developing single service weapons. I've listed some areas that outline where we need to go with transformational technology, but we obviously need to do it with cost in mind and in the spirit of jointness.

In early June near Karabilah, Iraq, Air Force F-16s dropped five GBU-12s (guided bomb units) and two GBU-38 JDAMs against armed anti-Iraqi forces hiding in small buildings in a suburb outside the city. The insurgents were engaged with U.S. Marines. The enemy threat was eliminated in a matter of minutes and there was no collateral damage.

This type of precise, timely and dominant warfare would be impossible without a strong industry-warfighter partnership that's never been more important than it is today. Agility is the key for the future force. We need to continue to transform our ability to rapidly respond so we can be successful in the future.

The success of our Airmen and the rest of our military can be seen in the faces of 53 million Afghan and Iraqi citizens — now free from tyranny — who now have the opportunity to determine their own futures. You are part of that success.

Editor's Note: Lt. Gen. Fraser's article has been edited from his remarks at AFCEA Transformation TechNet 2005, June 22, 2005. For more information about Air Combat Command go to http://www.acc.af.mil/. CHIPS